

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Chicago**

Site Summary Level: **Brookhaven National Laboratory**

Project **CH-BRNLRA / BNL Remedial Actions**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0006**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

The work scope for this project involves the CERCLA cleanup program at BNL as implemented under an Interagency Agreement among DOE, U.S. EPA and New York State. The following major activities are included:

Operable Units: Performance of a Remedial Investigation and Feasibility Study to assess the nature and extent of contamination and evaluate cleanup alternatives; selection of a remedy via a Record of Decision; design and implementation of the remedy followed by monitoring and project closeout. These activities are conducted for all Operable Units.

Removal Actions: Performance of field investigations; preparation of an Engineering Evaluation and Cost Analysis; selection of a remedy via an Action Memorandum; and conduct the design and cleanup followed by monitoring and project closeout.

Sitewide Activities: Includes hydrogeological characterization, database administration, geographic information systems, sitewide groundwater modeling and monitoring, and technical support for the planning, assessment, remediation and closure of all Operable Units and Removal Action projects. Significant support products include graphical representations (i.e., maps) of the groundwater flow pathways, contamination contours from monitoring data, and various physical attributes of the site.

Technical Approach: The BNL site is divided into six Operable Units based on similarity of contaminants and geographical proximity. A status of the Operable Units in general order of priority is as follows:

1. Operable Unit IV: The primary Area of Concern in this Operable Unit is a 1977 Oil/Waste Solvent Spill. A remedy of air sparging and soil extraction was selected to address contaminated soils and groundwater and the Record of Decision was signed in April 1996. The system began operations in November 1997. Several tanks were also removed in the early 1990s.
2. Operable Unit VI: The primary concern is a plume of ethylene dibromide (EDB) contaminated groundwater that has migrated off-site. EDB was used to sterilize agricultural research fields at BNL in the 1960s/70s. Natural attenuation, long term monitoring and public water hookups has been proposed as the remedy. The public comment period and public meeting have been held and the ROD is under final review by EPA and NYSDEC.
3. Operable Unit III: The primary concern in this Operable Unit is contaminated groundwater from the developed central portion of the site. Operable Unit III has two removal actions in place (a pump and treat at the south boundary and a pump and recharge for the HFBR tritium plume). A third system is currently under construction for start-up in Summer 1999 in the Industrial Park south of BNL. The Feasibility Study and Proposed Plan underwent public review and comment in March/April 1999 and the final Record of Decision is expected during the Summer of 1999. In addition, public water hookups were provided to the residential areas south of Operable Unit III.
4. Operable Unit I: This operable unit addresses radiologically contaminated soils at areas such as the former Hazardous Waste Management Facility, the Waste Concentration Facility and the Building 650 Sump and Outfall areas. A Feasibility Study and Proposed Plan were issued for public review

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and comment in April 1999 and the final Record of Decision is expected to be issued in summer 1999. Other areas of concern in this operable unit have been addressed as removal actions. For example, three landfills in this operable unit have been capped as removal actions.

5. Operable Unit V: The primary concerns in this operable unit are the BNL sewage treatment plant, which has been operating since 1947, and the impacts of historical releases on groundwater and the Peconic River. The Remedial Investigation and Risk Assessment Report is complete and a draft Feasibility Study and Proposed Plan are undergoing regulatory review. These reports are expected to be issued for public review by the end of calendar year 1999. Additional sampling of river sediments also was performed in spring 1999.

Project Status in FY 2006:

By the end of FY2006, all Records of Decision will be approved, remediation of contaminated soil and sediment will be complete, all groundwater remediation systems operational and long-term environmental monitoring will be underway.

Post-2006 Project Scope:

Key activities scheduled to occur after FY 2006 include operation, maintenance, and performance monitoring of the groundwater treatment systems; groundwater monitoring and preparation of various reports; and groundwater modeling to evaluate the effectiveness of the treatment systems.

Project End State

A combination of groundwater treatment and long-term environmental monitoring will occur until groundwater concentrations reach the drinking water standard. These, and project closeout activities, are expected to be complete in FY 2034.

Cost Baseline Comments:

A revised baseline for this project was completed in March 1999. Cost and schedule assumptions include the following:

- 1.) annual funding of at least \$20M per year;
- 2.) costs are in 1999 dollars escalated at 2.7% per year;
- 3.) CERCLA process for Operable Units and Removal Actions will be used;
- 4.) there will be timely consensus with BNL stakeholders on proposed remedial and removal actions;
- 5.) there are no "No Action" RODS; at a minimum, long-term monitoring will be required;
- 6.) cost estimates for remediation for Operable Units are based on the most recent versions of the Feasibility Studies and Records of Decision as well as best professional judgement for likely remedial actions;
- 7.) costs for management, handling, and disposal of environmental restoration produced wastes are included;

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8.) the climate will be mild and no significant weather related delays will occur with winter field work;

9.) contingency and risk costs are included; and

10.) BNL overhead rates have been applied to work performed by BNL.

Safety & Health Hazards:

Public Health and Safety: For soils, current risks to BNL employees and the public are controlled by access restrictions where needed. Future risks exist if the site were to be released to the public for unrestricted use. Also, contaminated soils are a source of contamination to groundwater.

The potential for public exposure to off-site groundwater contaminated with Volatile Organic Compounds (i.e. solvents) above drinking water standards by the use of private supply wells exist. This risk has been mitigated by the provision of public water downgradient of BNL. Also, the public could be exposed to contaminated groundwater on-site if BNL were released to the general public for unrestricted use and private supply wells were installed.

Residual risks after remediation are expected to be negligible.

Environmental Protection: The most important issues are impacts to the sole source aquifer and the Peconic River.

Safety & Health Work Performance:

In most cases, risks to remediation workers from contamination in soil or groundwater is negligible and can be controlled by proper work planning. Risks to BNL site workers following remediation are assumed to be negligible.

PBS Comments:

The Remedial Actions Project is essential to accomplish the work required under the DOE/EPA/DEC Interagency Agreement. This project as well as Program Management (CH-BRNLPM), Boneyard Waste (CH-BRNLBYW), and Decontamination and Decommissioning Actions (

Baseline Validation Narrative:

Technical scope and schedule validation was performed by the DOE Federal Energy Technology Center (FETC) and the Huntington District U.W. Army Corps of Engineers (USACE) (reference: Brookhaven National Laboratory Baseline Validation Report, September 8-17, 1998)

General PBS Information

Project Validated?	Yes	Date Validated:	9/17/1998
Has Headquarters reviewed and approved project?	No		
Date Project was Added:	12/1/1997		

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General PBS Information

Baseline Submission Date: 7/7/1999

FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	Y	Y	N	N	N	Y	Y	N

Project Identification Information

DOE Project Manager: Gail Penny

DOE Project Manager Phone Number: 516-344-3429

DOE Project Manager Fax Number: 516-344-3444

DOE Project Manager e-mail address: gpenny@bnl.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	179,407	76,196	255,603	20,656	20,656	15,722	15,722	15,336	14,901	14,976	18,852	18,898	25,795	18,929	15,342	
PBS Baseline (constant 1999 dollars)	166,257	48,527	214,784	20,656	20,656	15,722	15,722	15,336	14,509	14,199	17,404	16,988	22,578	16,133	12,732	
PBS EM Baseline (current year dollars)	179,407	0	179,407	20,656	20,656	15,722	15,722	15,336	14,901	14,976	18,852	18,898	25,795	18,929	15,342	
PBS EM Baseline (constant 1999 dollars)	166,257	0	166,257	20,656	20,656	15,722	15,722	15,336	14,509	14,199	17,404	16,988	22,578	16,133	12,732	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070

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	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	5,743	5,399	5,194	4,509	18,200	13,758	11,939	8,942	2,512	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	4,641	4,248	3,979	3,364	12,543	8,299	6,304	4,132	1,017	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-EM Costs included in the Cost Baseline

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-EM Category: Other													
Office of Science											100	100	100
	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
Non-EM Category: Other													
Office of Science	100	100	100	100	100	100	100	100	100	100	100	100	100

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%

Project Reconciliation

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Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/1/2006

Current Projected End Date of Project: 9/30/2006

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	130,721	Actual 1997 Cost:	20,656	Actual 1998 Cost:	15,722
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	94,343	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			2,547
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	96,890				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	32,987	
Cost Growth Associated with Scope Previously Reported (+):		Additional groundwater treatment has been added based on new regulatory agreements.
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	129,877	
Additional Amount to Reconcile (+):	2	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	129,879	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Begin OUIII Off-Site O&M	CH-BRNL-RA-047		10/11/2002								

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Begin OUIII On-Site In-Well Sparging O&M	CH-BRNL-RA-042		1/30/2001								
Begin OUIII RAV/OUIV Offsite O&M	CH-BRNL-RA-040		7/21/2000								
End of OUI - HWMF	CH-BRNL-RA-041		9/1/2000								
End of OUIII - Accelerated Action Offsite	CH-BRNL-RA-057		9/30/2006								
End of OUIV - Central Steam Facility	CH-BRNL-RA-045		5/1/2002								
End of OUV - Sewage Treatment Plant	CH-BRNL-RA-053		8/1/2006								
End of RA5 - Groundwater Removal	CH-BRNL-RA-050		7/1/2004								
OUI - Submit Final FS to Admin Record	CH-BRNL-RA-005		11/25/1998		2/12/1999						
OUI - Submit Final PRAP to Admin Record	CH-BRNL-RA-006		11/25/1998		2/12/1999						
OUI - Submit Final Wast Char Rpt to DOE/EPA/DEC	CH-BRNL-RA-015		1/7/1999		5/19/1999						
OUI - Submit ROD with RS Summary to DOE	CH-BRNL-RA-016		1/15/1999								
OUI - Submit Soil Processing Work Plan to DOE/EPA/DEC	CH-BRNL-RA-001		10/14/1998								
OUI - Submit Waste Characterization Report to EPA/DEC	CH-BRNL-RA-004		11/16/1998		4/2/1999						
OUI - Submit final ROD to EPA/DEC	CH-BRNL-RA-028		4/19/1999								
OUI - Submit signed ROD with RS to EPA/DEC	CH-BRNL-RA-023		2/15/1999	6/4/1999			Y			Y	
OUI Submit Draft Revised ROD to EPA/DEC	CH-BRNL-RA-009		12/15/1998	4/9/1999	2/12/1999		Y				
OUII - Submit Alpha Sampling Pre-Design Report to EPA/DEC	CH-BRNL-RA-027		4/15/1999								
OUII - Submit BLIP EE/CA to DOE-BHG/EPA/DEC	CH-BRNL-RA-019		1/26/1999	1/26/1999			Y				
OUIII - Submit Bldg 96 Draft WP Char/Pre-Design to EPA/DEC	CH-BRNL-RA-012		12/30/1998			12/30/1998					
OUIII - Submit Draft Final RI/RA to EPA/DEC	CH-BRNL-RA-003		11/13/1998	11/13/1998		11/13/1998	Y				

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OUIII - Submit HFBR Natural Attenuation to EPA/DEC	CH-BRNL-RA-011		12/29/1998		2/1/1999						
OUIII - Submit ROD without RS to DOE	CH-BRNL-RA-014		1/5/1999								
OUIII - Submit signed ROD with RS to EPA/DEC	CH-BRNL-RA-026		4/1/1999	6/15/1999			Y			Y	
OUIII RA V/OUIV Offsite RA - Begin O&M	CH-BRNL-RA-039		7/1/2000								
OUIII Submit Draft ROD without RS to EPA/DEC	CH-BRNL-RA-021		2/1/1999	2/1/1999			Y		Y		
OUIII Submit draft final FS/PRAP to EPA/DEC	CH-BRNL-RA-010		12/16/1998	12/16/1998		12/16/1998	Y				
OUIV - Submit Annual O&M Report to EPA/DEC	CH-BRNL-RA-029		5/11/1999								
OUIV - Submit IRM Report for AOC6 to EPA/DEC	CH-BRNL-RA-030		5/26/1999								
OUIV - Submit SAP/Work Plan GW screen to EPA/DEC	CH-BRNL-RA-013		12/31/1998		1/26/1999						
OUV - Submit DOE Signed ROD with RS to EPA/DEC	CH-BRNL-RA-025		3/15/1999	10/30/1999			Y			Y	
OUV - Submit Draft ROD without RS to EPA/DEC	CH-BRNL-RA-020		1/29/1999	7/30/1999							
OUV - Submit Draft Sampling Report to DOE/EPA/DEC	CH-BRNL-RA-018		1/20/1999	7/30/1999							
OUV - Submit RD Work Plan to BNL/DOE	CH-BRNL-RA-031		5/29/1999	2/2/2000			Y				
OUV - Submit ROD with RS to BNL/DOE	CH-BRNL-RA-024		3/1/1999								
OUV - Submit Rev FS/PRAP to EPA/DEC	CH-BRNL-RA-002		10/28/1998			10/28/1998					
OUV - Submit DOE signed ROD to EPA/DEC	CH-BRNL-RA-032		6/29/1999								
OUV Final Design to BNL/DOE	CH-BRNL-RA-035		9/27/2001								
OUV RA Work Plan to DOE	CH-BRNL-RA-036		2/1/2000								
Transfer O&M/Monitoring Functions to Landlord	CH-BRNL-RA-055		9/30/2006								
Removal Actions - Submit OUVI Monitor Plan to EPA/DEC	CH-BRNL-RA-008		12/15/1998								

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Sitewide - Submit Draft SA to BNL/DOE/REG (PASI)	CH-BRNL-RA-022		1/29/1999								
Sitewide - Submit Final GW Monitoring Report to DOE	CH-BRNL-RA-033		8/4/1999								
Sitewide -Submit Draft QAPP to DOE/EPA/DEC	CH-BRNL-RA-017		1/19/1999								
Sitewide-Submit Draft S&A Plan for 1999 to DOE/EPA/DEC	CH-BRNL-RA-007		11/30/1998			11/30/1998					
Submit Groundwater Removal Actions Operations Report to EPA/DEC	CH-BRNL-RA-049		4/7/2004								
Submit OUI Closeout to DOE/EPA/DEC	CH-BRNL-RA-048		2/11/2003								
Submit OUI Landfill Phase I Five Yr Review Report to BNL/DOE	CH-BRNL-RA-043		12/27/2001								
Submit OUI Landfill Phase II Five Yr Review Report to BNL/DOE	CH-BRNL-RA-044		1/18/2002								
Submit OUI Report to DOE/EPA/DEC	CH-BRNL-RA-051		11/12/2005								
Submit OUIII On-Site Operations Report to EPA/DEC	CH-BRNL-RA-056		9/30/2006								
Submit OUIII RAV/OUIV In-Well Sparging RD Work Plan	CH-BRNL-RA-034		12/15/1999								
Submit OUIV Close Report to EPA/DEC	CH-BRNL-RA-046		5/28/2002								
Submit OUIV Post Closure Deletion Report to EPA/DEC	CH-BRNL-RA-052		3/7/2006								
Submit OUV Final Design to EPA/DEC	CH-BRNL-RA-037		12/10/2000								
Submit OUV RA Work Plan to EPA/DEC	CH-BRNL-RA-038		2/17/2000								
Submit OUV closeout Report to EPA/DEC	CH-BRNL-RA-054		8/10/2006	12/31/2008			Y				
Complete OU I Rad Soils Remedial Actions			7/14/2006								
Issue Final OU I ROD to Record			9/22/1999								

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Issue Final OU V ROD to Record			12/28/1999								
Complete Peconic River Remedial Actions			6/7/2004								
Issue Final OU III ROD to Record			9/30/1999								
Construction Complete Building 96 AS/SVE			5/24/2000								
Construction Complete Middle Road System			2/5/2001								
Construction Complete Airport System			12/17/2001								
Construction Complete North Street System			11/27/2002								
Construction Complete Industrial Park East			7/23/2003								
Construction Complete LIPA System			8/20/2003								
Construction Complete Sr90 RA System			6/14/2004								
Project Start	CH-BNL-RA-070		10/1/1996								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Begin OUIII Off-Site O&M	CH-BRNL-RA-047									Y	
Begin OUIII On-Site In-Well Sparging O&M	CH-BRNL-RA-042									Y	
Begin OUIII RAV/OUIV Offsite O&M	CH-BRNL-RA-040									Y	
End of OUI - HWMF	CH-BRNL-RA-041									Y	
End of OUIII - Accelerated Action Offsite	CH-BRNL-RA-057									Y	
End of OUIV - Central Steam Facility	CH-BRNL-RA-045									Y	

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End of OUV - Sewage Treatment Plant	CH-BRNL-RA-053									Y	
End of RA5 - Groundwater Removal	CH-BRNL-RA-050									Y	
OUI - Submit Final FS to Admin Record	CH-BRNL-RA-005									Y	
OUI - Submit Final PRAP to Admin Record	CH-BRNL-RA-006									Y	
OUI - Submit Final Waste Char Rpt to DOE/EPA/DEC	CH-BRNL-RA-015										
OUI - Submit ROD with RS Summary to DOE	CH-BRNL-RA-016										
OUI - Submit Soil Processing Work Plan to DOE/EPA/DEC	CH-BRNL-RA-001									Y	
OUI - Submit Waste Characterization Report to EPA/DEC	CH-BRNL-RA-004										
OUI - Submit final ROD to EPA/DEC	CH-BRNL-RA-028									Y	
OUI - Submit signed ROD with RS to EPA/DEC	CH-BRNL-RA-023										
OUI Submit Draft Revised ROD to EPA/DEC	CH-BRNL-RA-009									Y	
OUII - Submit Alpha Sampling Pre-Design Report to EPA/DEC	CH-BRNL-RA-027									Y	
OUII - Submit BLIP EE/CA to DOE-BHG/EPA/DEC	CH-BRNL-RA-019										
OUIII - Submit Bldg 96 Draft WP	CH-BRNL-RA-012										

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Char/Pre-Design to EPA/DEC											
OUIII - Submit Draft Final RI/RA to EPA/DEC	CH-BRNL-RA-003										
OUIII - Submit HFBR Natural Attenuation to EPA/DEC	CH-BRNL-RA-011										
OUIII - Submit ROD without RS to DOE	CH-BRNL-RA-014										
OUIII - Submit signed ROD with RS to EPA/DEC	CH-BRNL-RA-026										
OUIII RA V/OUIV Offsite RA - Begin O&M	CH-BRNL-RA-039									Y	
OUIII Submit Draft ROD without RS to EPA/DEC	CH-BRNL-RA-021										
OUIII Submit draft final FS/PRAP to EPA/DEC	CH-BRNL-RA-010										
OUIV - Submit Annual O&M Report to EPA/DEC	CH-BRNL-RA-029										
OUIV - Submit IRM Report for AOC6 to EPA/DEC	CH-BRNL-RA-030										
OUIV - Submit SAP/Work Plan GW screen to EPA/DEC	CH-BRNL-RA-013										
OUV - Submit DOE Signed ROD with RS to EPA/DEC	CH-BRNL-RA-025										
OUV - Submit Draft ROD without RS to EPA/DEC	CH-BRNL-RA-020										
OUV - Submit Draft Sampling Report to DOE/EPA/DEC	CH-BRNL-RA-018										
OUV - Submit RD Work Plan to	CH-BRNL-RA-031										

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Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
BNL/DOE											
OUV - Submit ROD with RS to BNL/DOE	CH-BRNL-RA-024										
OUV - Submit Rev FS/PRAP to EPA/DEC	CH-BRNL-RA-002										
OUV - Submit DOE signed ROD to EPA/DEC	CH-BRNL-RA-032									Y	
OUV Final Design to BNL/DOE	CH-BRNL-RA-035										
OUV RA Work Plan to DOE	CH-BRNL-RA-036									Y	
Transfer O&M/Monitoring Functions to Landlord	CH-BRNL-RA-055		Y		Y		1	1	1		
Removal Actions - Submit OUVI Monitor Plan to EPA/DEC	CH-BRNL-RA-008										
Sitewide - Submit Draft SA to BNL/DOE/REG (PASI)	CH-BRNL-RA-022										
Sitewide - Submit Final GW Monitoring Report to DOE	CH-BRNL-RA-033										
Sitewide -Submit Draft QAPP to DOE/EPA/DEC	CH-BRNL-RA-017										
Sitewide-Submit Draft S&A Plan for 1999 to DOE/EPA/DEC	CH-BRNL-RA-007										
Submit Groundwater Removal Actions Operations Report to EPA/DEC	CH-BRNL-RA-049									Y	
Submit OUI Closeout to DOE/EPA/DEC	CH-BRNL-RA-048									Y	
Submit OUI Landfill Phase I Five Yr Review Report to BNL/DOE	CH-BRNL-RA-043									Y	

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Submit OUI Landfill Phase II Five Yr Review Report to BNL/DOE	CH-BRNL-RA-044									Y	
Submit OUI Report to DOE/EPA/DEC	CH-BRNL-RA-051									Y	
Submit OUIII On-Site Operations Report to EPA/DEC	CH-BRNL-RA-056									Y	
Submit OUIII RAV/OUIV In-Well Sparging RD Work Plan	CH-BRNL-RA-034									Y	
Submit OUIV Close Report to EPA/DEC	CH-BRNL-RA-046										
Submit OUIV Post Closure Deletion Report to EPA/DEC	CH-BRNL-RA-052										
Submit OUV Final Design to EPA/DEC	CH-BRNL-RA-037										
Submit OUV RA Work Plan to EPA/DEC	CH-BRNL-RA-038										
Submit OUV closeout Report to EPA/DEC	CH-BRNL-RA-054									Y	
Complete OU I Rad Soils Remedial Actions			Y				2	3	4		Complete excavation of contaminated soils at the former HWMF, Building 650 sump and outfall, Building 811 yard and landscape areas
Issue Final OU I ROD to Record			Y				1	3	1		The OU I Record of Decision (ROD) is signed by DOE, EPA and NYSDEC and placed in the Administrative Record.
Issue Final OU V ROD to Record			Y				1	4	1		The OU V Record of Decision (ROD) is signed by DOE, EPA and

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Complete Peconic River Remedial Actions			Y				3	4	2		NYSDEC and placed in the Administrative Record. Complete remediation of contaminated sediments from the Peconic River and soils at the BNL Sewage Treatment Plant.
Issue Final OU III ROD to Record			Y				1	3	1		The OU III Record of Decision (ROD) is signed by DOE, EPA and NYSDEC and placed in the Administrative Record.
Construction Complete Building 96 AS/SVE			Y				2	3	1		Building 96 AS/SVE Construction is complete and start-up testing is initiated.
Construction Complete Middle Road System			Y				2	3	1		Middle Road System construction is complete and start-up testing is initiated.
Construction Complete Airport System			Y				2	3	1		Airport System construction is complete and start-up testing is initiated.
Construction Complete North Street System			Y				2	3	1		North Street System construction is complete and start-up testing is initiated.
Construction Complete Industrial Park East			Y				2	3	1		Industrial Park East System construction is complete and start-up testing is initiated.
Construction Complete LIPA System			Y				2	3	1		Long Island Power Authority (LIPA) System construction is complete and start-up testing is initiated.
Construction Complete Sr90 RA System			Y				2	3	1		The Sr90 Remedial Action System construction is complete and start-up testing is initiated.

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Project Start	CH-BNL-RA-070			Y										

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
RS														
Assess.	NR	35.00	0.00	35.00	39.00	19.00	19.00	4.00	12.00					
RS														
Cleanup	NR	49.00	0.00	49.00	25.00	25.00	25.00	8.00	4.00	1.00				5.00
Fac.														
Decom.- Assess.	NF	1.00	0.00	1.00					1.00					
Fac.														
Decom- Cleanup	NF	1.00	0.00	1.00										
LLW														
Storage	M3							187.11	42.49	0.00	0.00	0.00	0.00	0.00
LLW														
Ship to DOE Disp.	M3	1,702.70	29.11	1,731.81				0.00	568.65	90.74	193.35	2.35	24.56	269.35
Rem. Waste														
Disposed	M3	44,781.60	29.11	44,810.71				0.00	108.07	698.64	6,672.05	4,464.44	2,632.35	15,536.35
Tech.														
Deployed	Ntd	4.00	0.00	4.00					3.00	1.00				

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
RS													
Assess.	NR												
RS													
Cleanup	NR	5.00		6.00									
Fac.													
Decom.- Assess.	NF												
Fac.													
Decom- Cleanup	NF			1.00									
LLW													
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LLW													
Ship to DOE Disp.	M3	269.35	244.35	309.35	2.35	2.35	2.35	2.35	6.62	6.62	2.94	2.94	0.59
Rem. Waste													
Disposed	M3	15,536.35	10,191.35	4,478.35	2.35	2.35	2.35	2.35	6.62	6.62	2.94	2.94	0.59
Tech.													
Deployed	Ntd												
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total			
RS													
Assess.	NR								1.00	74.00			
RS													
Cleanup	NR								2.00	74.00			
Fac.													
Decom.- Assess.	NF									1.00			

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Category/Subcategory			Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total			
Fac.															
Decom- Cleanup			NF									1.00			
LLW															
Storage			M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
LLW															
Ship to DOE Disp.			M3								0.00	1,163.16			
Rem. Waste															
Disposed			M3								0.00	44,702.64			
Tech.															
Deployed			Ntd								2.00	4.00			
Release Sites															
Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD	
BRNL	0001		AOC12 \ USTs at Bldg 445	Tanks/Underground Storage Tanks	1995		9/30/1995	1995		9/30/1995		Y	Approved	N	
BRNL	0002		AOC24E \ Recharge Basin HS/Outfall5	Liquid Surface Impoundments/Seepage Basins	1997		12/11/1996	1997		12/11/1996		Y	Pending	N	
BRNL	0003		AOC24F \ New SW Recharge Basin (Weaver Dr.)	Liquid Surface Impoundments/Seepage Basins	1997		12/11/1996	1997		12/11/1996		Y	Pending	N	
BRNL	0004		AOC28 \ EBD Groundwater Plume	Surface and Groundwater/Groundwa ter Plumes	1996	1996	9/30/1996	1998	1998	12/19/1997		N	Pending	Y	
BRNL	0005		AOC2A \ Former Landfill	Waste/Landfills	1995		9/30/1995	1997		12/20/1996		N	Approved	Y	
BRNL	0006		AOC2B \ Chemical/Animal Pits	Waste/Pits	1998	1998	10/2/1997	1998	1998	10/2/1997		Y		Y	

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BRNL	0007		AOC2C \ Glass Holes	Waste/Pits	1998	1998	10/2/1997	1998	1998	10/2/1997		Y		Y
BRNL	0008		AOC2D \ Interim Landfill	Waste/Miscellaneous Surface Debris	1995	1995	9/30/1995	1998	1998	12/5/1997		N		Y
BRNL	0009		AOC2E \ Slit Trench	Waste/Landfills	1995		9/30/1995	1997		12/20/1996		N	Pending	Y
BRNL	0010		AOC2F \ Ash Pit	Waste/Landfills	1997		12/11/1996	1997		12/11/1996		N	Pending	Y
BRNL	0011		AOC3 \ Current Landfill	Waste/Landfills	1995		9/30/1995	1997		10/1/1996		N	Approved	Y
BRNL	0012		AOC8 \ Upland Recharge Area/Marsh	Miscellaneous/Other	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0013		AOC10 \ 6 USTs at WCF	Tanks/Underground Storage Tanks	1999	1999	10/1/1998	2000	2001			N		Y
BRNL	0014		AOC10 \ Waste Concentration Facility (Soils)	Spills and Leaks/Surface Spills	1999	1999	10/1/1998	2006	2006			N		Y
BRNL	0015		AOC10A \ D tanks	Tanks/Above Ground Storage Tanks	1995		9/30/1995	1995		9/30/1995		N	Approved	Y
BRNL	0016		AOC10B \ Underground Pipeline	Spills and Leaks/Pipeline Leaks	1997		12/11/1996	1997		12/11/1996		N	Pending	Y
BRNL	0017		AOC16A \ AGS Area	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0018		AOC16B \ Warehouse near B196	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0019		AOC16C \ Warehouse Area (SERLM)	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0020		AOC16D \ Accelerator Storage	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0021		AOC16E \ Field Behind Medical Bldg.	Spills and Leaks/Surface Spills	1999	1999	10/1/1998	2006	2006			N		Y

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BRNL	0022		AOC16F \ Field Behind Chemistry Bldg.	Spills and Leaks/Surface Spills	1999	1999	10/1/1998	2006	2006			N		Y
BRNL	0023		AOC16G \ Field East of Brookhaven Ctr.	Spills and Leaks/Surface Spills	1999	1999	10/1/1998	1999		10/1/1998		N		N
BRNL	0024		AOC16I \ South end of LINAC B930	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0025		AOC16J \ CLIF, B931A	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0026		AOC16K \ BLIP, B931B	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0027		AOC16M \ AD Beams Components Facility B914	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0028		AOC16N \ Trailers north of B919A	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0029		AOC16O \ Helium Systems, B919	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0030		AOC16P \ Online Data Facility	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0031		AOC16Q \ Trailers north/east of B912	Above Ground Material / Waste/Scrap Yards	1995		9/30/1995	1995		9/30/1995		Y	Pending	Y
BRNL	0032		AOC16S \ Landscaping Soil	Spills and Leaks/Surface Spills	1999	1999	10/1/1998	2006	2006			N		Y
BRNL	0033		AOC17 \ Area near LowMass Criticality Facility	Spills and Leaks/Surface Spills	1997		12/11/1996	1997		12/11/1996		Y	Pending	N
BRNL	0034		AOC18 \ AGS Scrapyard	Above Ground Material / Waste/Scrap Yards	1997		12/11/1996	1997		12/11/1996		Y	Pending	N
BRNL	0035		AOC20 \ Particle Beam Dump	Miscellaneous/Other	1997		12/11/1996	1997		12/11/1996		Y	Pending	N

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BRNL	0036		AOC11 \ B830 Pipe Leak	Spills and Leaks/Pipeline Leaks	1998	1998	10/3/1997	1998	1998	10/3/1997		Y		Y
BRNL	0037		AOC12 \ USts at Bldg 830	Tanks/Underground Storage Tanks	1996	1996	9/30/1996	1999	1999	5/27/1999		N		Y
BRNL	0038		AOC14 \ Bubble Chamber Spill Areas	Spills and Leaks/Surface Spills	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0039		AOC19 \ TCE Spill Area, BT111	Spills and Leaks/Surface Spills	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0040		AOC21 \ Leaking Sewer Pipes in OU III	Spills and Leaks/Pipeline Leaks	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0041		AOC22 \ Old Firehouse Soil	Spills and Leaks/Surface Spills	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0042		AOC24B \ Recharge Basin HP/Outfall 4	Liquid Surface Impoundments/Seepage Basins	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0043		AOC24C \ Recharge Basin HN/Outfall2	Liquid Surface Impoundments/Seepage Basins	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0047		AOCs 15A, 15B, 24A \ OUIII Groundwater low level TCA	Surface and Groundwater/Groundwater Plumes	1999	1999	10/1/1998	1999	2001			N		Y
BRNL	0048		ACO7 \ Paint Shop B244	Spills and Leaks/Surface Spills	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0049		AOC21 \ Leaking Sewer Pipes in OUIV	Spills and Leaks/Pipeline Leaks	1995		9/30/1995	1995		9/30/1995		Y	Approved	Y
BRNL	0050		AOC24D \ Recharge Basin HO/Outfall3	Liquid Surface Impoundments/Seepage Basins	1995		9/30/1995	1995		9/30/1995		Y	Approved	Y
BRNL	0051		AOC5A \ 1977 Oil/Solvent Spill	Spills and	1996	1996	9/30/1996	1998	1998	11/17/199		N		N

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				Leaks/Pipeline Leaks						7				
BRNL	0052		AOC5B \ Former Leaching Pit	Waste/Pits	1995		9/30/1995	1995		9/30/1995		Y	Approved	N
BRNL	0053		AOC5C \ Underground Piping	Spills and Leaks/Pipeline Leaks	1995		9/30/1995	1995		9/30/1995		Y	Approved	N
BRNL	0054		AOC5D \ CSF Fuel Unloading Areas	Spills and Leaks/Surface Spills	1996		9/30/1996	1997		3/31/1997		N	Approved	N
BRNL	0055		AOC6 \ Reclamation B650 Outfall	Liquid Surface Impoundments/Seepage Basins	1996	1996	9/30/1996	2006	2006			N		Y
BRNL	0056		AOC21 \ Leaking Sewer Lines in OUV	Spills and Leaks/Pipeline Leaks	1997		12/11/1996	1997		12/11/1996		Y	Pending	N
BRNL	0057		AOC4A,B,D \ Sewage Treatment Plant	Miscellaneous/Other	1997		10/1/1996	1997		10/1/1996		Y	Pending	N
BRNL	0058		AOC4C \ Imhoff Tank	Tanks/Septic Tanks	1995		9/30/1995	1997		6/3/1997		N	Pending	Y
BRNL	0059		AOC4E \ Satellite Disposal Area	Waste/Pits	1997		12/11/1996	1997		12/11/1996		Y	Pending	N
BRNL	0060		AOC12 \ USTs at Bldg 650	Tanks/Underground Storage Tanks	1995		9/30/1995	1995		9/30/1995		N	Approved	Y
BRNL	0061		AOC13 \ Cesspools	Liquid Surface Impoundments/Leach Fields	1995		9/30/1995	1996		3/15/1996		N	Pending	Y
BRNL	0062		AOC25 \ Heavy Machine Shop,B479	Spills and Leaks/Surface Spills	1992		9/30/1992	1995		9/30/1992		Y	Approved	N
BRNL	0063		AOC26 \ Central Shops,B208	Spills and Leaks/Surface Spills	1997		2/21/1997	1997		2/21/1997		Y	Pending	N
BRNL	0064		AOC27 \ Mercury Soil, B464	Spills and Leaks/Surface Spills	1994		9/30/1994	1994		9/30/1994		Y	Approved	N
BRNL	0065		AOC1 \ HWMF	Spills and	1999	1999	8/12/1999	2006	2006			N		Y

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				Leaks/Surface Spills										
BRNL	0066		RA5 \ OU I Ground water	Surface and Groundwater/Groundwater Plumes	1996		9/30/1996	1997		12/24/1996	1996	N	Pending	Y
BRNL	0067		AOC4 \ Peconic River Sediments	Surface and Groundwater/Sediments	1999	1999		2004	2004		1996	N		Y
BRNL	0068		N/A \ Drainage Area E of CSF	Miscellaneous/Other	1996		3/15/1996	1996		3/15/1996	1992	Y	Approved	N
BRNL	0069		N/A \ Former gas UST	Tanks/Underground Storage Tanks	1996		3/15/1996	1996		3/15/1996	1996	Y	Approved	N
BRNL	0070		AOC8 \ Biology Fields	Miscellaneous/Other	1997		10/1/1996	1997		10/1/1996	1996	Y	Pending	N
BRNL	0071		AOC23 \ OU V Ground water plume	Surface and Groundwater/Groundwater Plumes	1998	1998	8/31/1998	1998	1998	8/31/1998	1996	Y		Y
BRNL	0072		N/A \ OU III Groundwater high PCE/TCA	Surface and Groundwater/Groundwater Plumes	1996	1996	9/30/1996	2004	2004		1996	N		N
BRNL	0073		N/A \ OU III Groundwater Carbon Tet	Surface and Groundwater/Groundwater Plumes	1996	1996	9/30/1996	2004	2004		1996	N		N
BRNL	0074		AOC 9, 10 \ OU III Ground Water Sr-90	Surface and Groundwater/Groundwater Plumes	1999	1999	10/1/1998	2004	2004		1996	N		Y
BRNL	0075		N/A \ OU III Groundwater -TCA at AGS	Surface and Groundwater/Groundwater Plumes	1999	1999	8/27/1999	2004	2004		1996	N		Y
BRNL	0076		AOC13 \ 5 Additional Cesspools	Liquid Surface Impoundments/Leach Fields	1996	1996	9/30/1996	1998	1998	6/17/1998	1996	N		Y

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Project Baseline Summary Report

Data Source: EM CDB

Operations/Field Office: Chicago

Site Summary Level: Brookhaven National Laboratory

Project CH-BRNLRA / BNL Remedial Actions

Report Number: GEN-01b

Print Date: 3/9/2000

HQ ID: 0006

Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
BRNL	0077		AOC 29 \ HFBR spent feul pool and tritium groundwater contamination	/	1999	1999	10/1/1998	1999	2000			N		

Facility Decommissioning

Site Code	RSF ID	Change Flag	Description	Class/Subclass	Hazard	Plan. Assess. Year	Fore. Assess. Year	Actual Assess. Date	Plan. Deac. Year	Fore. Deac. Year	Actual Deac. Date	Plan. Comp. Year	Fore. Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
BRNL	0078		HWMF Buildings, Incinerator & UST	Buildings & Equipment/Storage Building / Warehouse	Radiological Facility	1999		10/1/1998				2006	2006			N		Y

Technology Needs

Site Need Code: CH-SS01-99

Site Need Name: Remediation of Strontium-90 Contaminated Groundwater

Focus Area Work Package ID: SS-08

Focus Area Work Package: Saturated Zone Treatment Systems

Focus Area: SCFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Reactive Barrier for Strontium-90

Related CCP Milestones

Related Waste Streams

Agree?

Change?

00029: -

Y

N

Dataset Name: FY 1999 Planning Data

Date of Dataset: 9/20/1999

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Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Chicago**

Site Summary Level: **Brookhaven National Laboratory**

Project **CH-BRNLRA / BNL Remedial Actions**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0006**

Technology Needs

Site Need Code: CH-MW01-99

Site Need Name: Treatment of Hg Mixed Waste from Chemical Holes

Focus Area Work Package ID: MW-02

Focus Area Work Package: Treatment and Stabilization Alternative for Hg Bearing Mixed Waste

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Mercury Contamination - Amalgamate Mercury (contract with NFS and ADA)

Stabilization of Mercury Using Sulfur Polymer Cement

Separation of Mercury Using Low Temperature Thermal Desorption

Mercury Removal Using General Electric Process

Mercury Wastes - >260ppm

Related CCP Milestones

Related Waste Streams

Agree?

Change?

: -

02400: HAZ - OU I A/C and Glass Holes Stockpile 6B Soils

Y

N

Site Need Code: CH-SS03-99

Site Need Name: Treatment of Radioactive Contaminated Soils

Focus Area Work Package ID: SS-07

Focus Area Work Package: Vadose Zone Treatment Systems

Focus Area: SCFA

Agree with Technology Link: N

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Segmented Gate System

5,000

High

Dataset Name: **FY 1999 Planning Data**

Date of Dataset: **9/20/1999**

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Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Chicago**

Site Summary Level: **Brookhaven National Laboratory**

Project **CH-BRNLRA / BNL Remedial Actions**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0006**

Technology Needs

Site Need Code: ch-ss04-99

Site Need Name: Long-Term Groundwater Monitoring

Focus Area Work Package ID: SS-11

Focus Area Work Package: Validation, Verification, & Long-Term Monitoring of Containment & Treatment

Focus Area: SCFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Related CCP Milestones

Related Waste Streams

Agree?

Change?

00032: HAZ-1 - OU III South Boundary Pump & Treat Air Stripper O&M Gr

Y

N

00033: HAZ-2 - OU III Off-site Removal In-Well Air Sparge Construction/O

Y

N

Site Need Code: ch-ss02-99

Site Need Name: Remediation of Volatile Organic Compounds (VOCs) in Groundwater

Focus Area Work Package ID: SS-08

Focus Area Work Package: Saturated Zone Treatment Systems

Focus Area: SCFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

In Well Vapor Stripping

5,000

High

Related CCP Milestones

Related Waste Streams

Agree?

Change?

: -

00032: HAZ-1 - OU III South Boundary Pump & Treat Air Stripper O&M Gr

Y

N

00033: HAZ-2 - OU III Off-site Removal In-Well Air Sparge Construction/O

Y

N

Dataset Name: **FY 1999 Planning Data**

Date of Dataset: **9/20/1999**

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Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Chicago**

Site Summary Level: **Brookhaven National Laboratory**

Project **CH-BRNLRA / BNL Remedial Actions**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0006**

Technology Needs

Site Need Code: ch-ss06-99

Site Need Name: Vadose Contamination at BNL

Focus Area Work Package ID: SS-02

Focus Area Work Package: Barriers for Containmant and Control

Focus Area: SCFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Viscous Liquid Barrier

0

Technology Deployments

<u>Deployment Status</u>	<u>Deployment Year</u>		
	<u>Planned</u>	<u>Forecast</u>	<u>Actual Date</u>
Technology Name: In Well Vapor Stripping			
Deployment Commitment	1999	1999	
Technology Name: Viscous Liquid Barrier			
Deployment Commitment	1999	1999	
Technology Name: Stabilization of Mercury Using Sulfur Polymer Cement			
Deployment Commitment	1999	1999	1/30/1999
Technology Name: Segmented Gate System			
Potential Deployment	2000	2000	

Dataset Name: **FY 1999 Planning Data**

Date of Dataset: **9/20/1999**

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